

# MOSES OF CLEARWATER FALLS

Winter brings new wonders to explore as the rains awaken the hidden diversity of mosses in the forest. Mosses, along with their relatives, the liverworts and hornworts, are known as bryophytes and are unique among plants in their ability to dry out completely then fully recover when moistened. The winter climate of the Pacific Northwest is perfect for bryophytes since they usually photosynthesize more efficiently at lower temperatures and light conditions than most flowering plants.

Mosses, liverworts and hornworts are found most abundantly in wet habitats, but can survive a wide range of habitats. Some species grow only on soil, others on boulders or well-decayed logs while others occur only in branches of trees and shrubs.



**Coldwater moss (*Brachythecium rigidum*)**  
This moss thrives in the spray of waterfalls and is common on rocks and logs along mountain streams and springs. Mosses play an important role in the regulation of carbon, nutrients and water cycles within the habitats in which they grow.



**Square-headed liverwort (*Oligosiphum papillatum*)**  
The dark green foliage covering logs and rocks in the water below the falls isn't algae but rather a liverwort, an important source of shelter and food for aquatic invertebrates.



**Christian watermoss (*Fernandus equisetum*)**  
Because of their sensitivity to their environment, mosses are used to monitor pollution. This species has been used to monitor heavy metal accumulation in stream systems.



**Russow's peat moss (*Sphagnum russowii*)**  
*Sphagnum* or peat mosses occur in wetlands and along the margins of lakes and low-gradient streams. They grow upright in densely spaced patches and are recognized by the terminal branches that are clustered into a dense head.

## What's the Difference?



Mosses usually release their spores through an opening at the top of a capsule which is protected while the spores mature by a hat-like structure called a calyptra.



Hornworts produce a narrow, horn-like structure that splits in lines from the top down to release its spores.



Leafy liverworts have a dark, oval capsule that will rupture longitudinally along four sutures to release its spores.